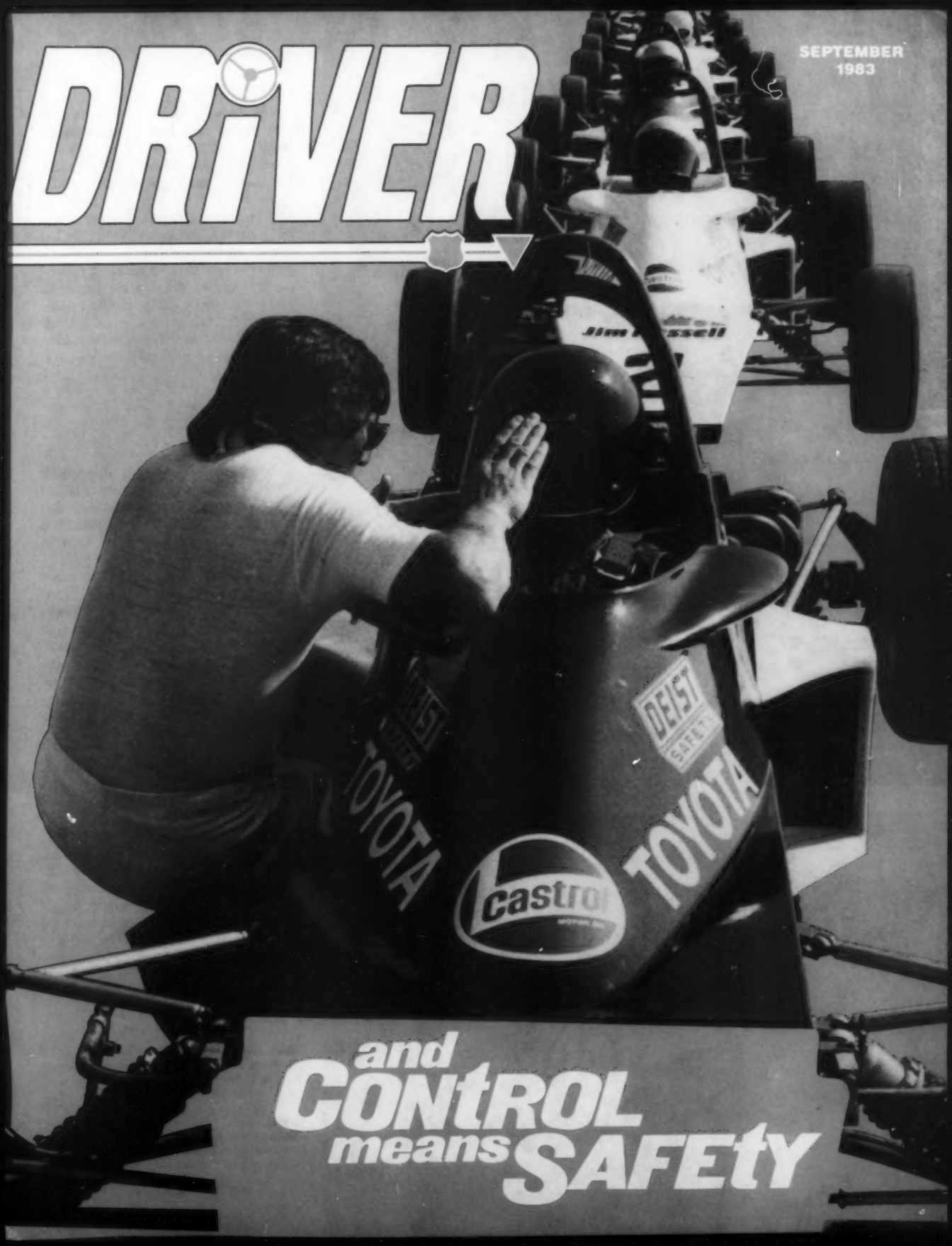
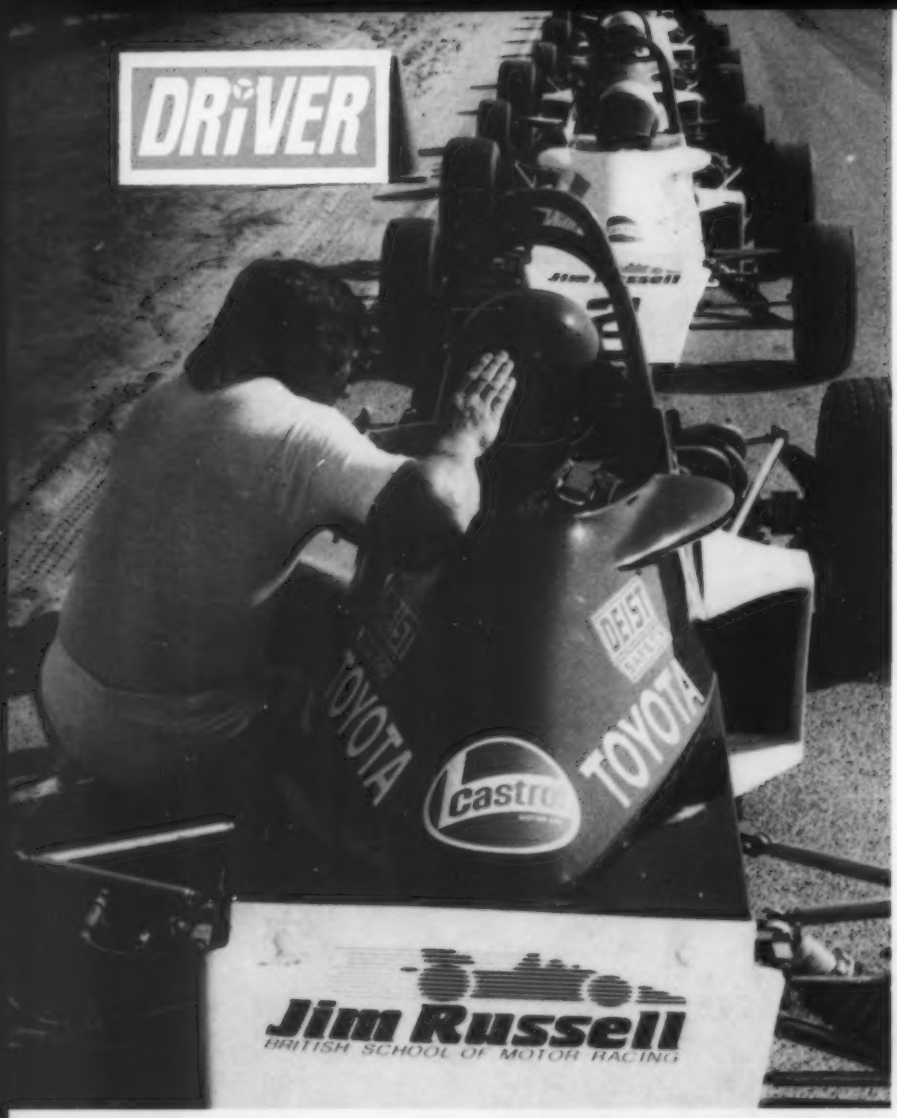

DRIVER
SEPTEMBER
1983
DEIST
SAFETY
TOYOTA
castrol
TOYOTA
and
CONTROL
means
SAFETY



Safe driving, whether on highway or track, really boils down to a harmonious relationship between driver, car and road. *This general course is designed to provide an understanding of this harmonious relationship between operator, vehicle and environment. The course provides background for more effective use of that relationship to achieve maximum control as well as a foundation for future driving courses. Each of the functional areas of driving is explored. Mid-engine, rear-wheel-drive, one-passenger, Formula Ford race cars are used to aid the student in applying the principles and concepts studied.*

There's a good reason why that sounds like a college catalog outline of an undergraduate course: The schools that offer such courses are the equivalent of undergraduate studies when it comes to driving.

As with your basic education, there are several levels of driver training. Some people can get by without a high school diploma just as there are many drivers out there who have never had any formal driver education. Similarly, that high school diploma will get you through most of life's ups and downs just as almost any basic drivers' ed class will prepare you for a licensing exam.

However, if you want more from life than just getting by, you attend college. And if that degree isn't enough, there's graduate school. The same is true for your driving: There are undergraduate and graduate schools available.

While most of these advanced drivers' schools proclaim their prowess in teaching race driving, the basic lessons apply equally in day-to-day highway driving.

Although approaches vary from school to school, they all typically begin with paperwork. Once all the questions have

(left, top)
Racing schools place their emphasis on hands-on experience under the watchful eyes of highly skilled instructors.

(left)
Classroom sessions are kept to a minimum with up to 75 percent of the students' time spent behind the wheel.

2ND CONTROL MEANS SAFETY

DRIVER goes to driving school — but not the kind you may think. Herein, some tips from the race track you can put to use on the street. Just remember, fast driving is demanding and should be left to those trained and qualified.

Lectures and hands-on sessions are complimented by a comprehensive manual.

By
TSgt RON LATHROP

been answered and forms signed for the Jim Russell British School of Motor Racing course at Riverside International Raceway, Calif., the students are fitted with coveralls and helmets. Notice the word is "fitted": One size does NOT fit all, especially when it comes to helmets.

Clutching their comprehensive instruction manual and helmets, the coverall-clad students then sit down to an information packed lecture. This lecture is heavily laced with video tape presentations, slide shows and chalk board sessions.

The material in the manual is vitally important, but as with most college classes it is up to the individual to absorb it on his own. Similarly, the manual contains a complete section on physical conditioning which students are well advised to heed.

Of course the manual and lectures complement each other. Subjects include: personal equipment, the car, seating, safety belts, the cockpit, the gearbox, braking, shifting, techniques and theories of cornering, practical cornering, etc.

However, don't get the idea that students become book worms or get sore backsides from sitting in the classroom. They do get sore backsides alright. But they get them from the beating that the race cars inflict on them. By the end of the three-day course the students have spent three out of every four minutes inside "their" race cars.

That's right, "their" race cars. Once the first lecture is over the group is hustled to the race track's backstraight where each student is assigned a racing car that will be his or hers until graduation. So for less then $1000 each student has a $20,000 Formula Ford race car.

The hands-on portion of the course begins with getting in and out of the single-seat race cars, literally. Before attempting to get into such a vehicle, the driver must first find a secure place to put his or her helmet. Students must be able to reach the helmet once seated, yet they don't want to risk knocking the helmet to the ground while swinging legs over body panels.

Standing on the left side of the car and facing forward, the driver places one hand on the car's roll bar and swings his or her right leg over the side, into the cockpit and down onto the seat carefully, to avoid striking the windscreen and mirrors. The

continued

THE TRAFFIC SAFETY MAGAZINE FOR THE MILITARY DRIVER

DRIVER

DEPARTMENT OF THE AIR FORCE
HQ AIR FORCE INSPECTION
AND SAFETY CENTER
Norton Air Force Base, California
92409

AFRP 127-1 VOLUME 17 NUMBER 4
SEPTEMBER 1983

CONTENTS

The Backyard Mechanic 22

Cover Story 1

Driver Errors and How To Avoid Them 9

The Man With A. Thousand Faces 14

Skid Control 20

Double Tech 27

Backfire 28

Child Restraint Laws 29

Back To School 30

Group Riding 16

Entered as a publication at the Second-Class rate (USPS No. 586-430) at San Bernardino Postal Service, 1331 South E Street, San Bernardino, CA 92403.

SUBSCRIPTION — DRIVER is published monthly and is available for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Back issues are not available. Changes in subscription mailings should be sent to the above address. Use of funds for printing this publication has been approved by Headquarters, United States Air Force, Department of Defense, Washington, D.C. No. payment can be made for manuscripts submitted for publication. Contributions are welcome, as are comments and criticism. Address all correspondence to the Editor, DRIVER Magazine, HQ AFISC/SEDD, Norton AFB, CA 92409.

Distribution: One copy for every 9 members of USAF.

ATTENTION DEPT OF THE NAVY PERSONNEL: Address all queries concerning distribution to NAVSAFECEN, NAS NORFOLK, VA 23511, Attn: Safety Publications Dept. All other correspondence will be welcomed by the Editor.

The purpose of this magazine is the prevention of vehicle accidents, and the contents are not directive unless so stated. Address reprint requests, stating intended use of material, to the Editor. The Editor reserves the right to make any editorial changes in manuscripts which will improve the material without altering the intended meaning.

The inclusion of names of any specific commercial product, commodity, or service in this publication is for information purposes only and does not imply endorsement by the Air Force.

Certain individuals shown in this magazine are not members of the Air Force and therefore do not conform to Air Force grooming standards.

Hon VERNE ORR
Secretary of the Air Force

Gen CHARLES A. GABRIEL
Chief of Staff, USAF

Lt Gen ROBERT W. BAZLEY
The Inspector General, USAF

Maj Gen GERALD D. LARSON
Commander
Air Force Inspection
and Safety Center

Brig Gen GORDON E. WILLIAMS
Director
Aerospace Safety

PUBLISHED MONTHLY
IN COOPERATION
WITH THE
DEPARTMENT OF THE ARMY
AND THE
DEPARTMENT OF THE NAVY

Dr. FRANCIS S. McGLADE
Director of Safety
United States Army

COMO JERRY C. BREAST
Commander
Naval Safety Center

Col WARREN L. BUSCH
Chief,
Safety Education Division

VIRGINIA HENDRIX
Editor

TSgt RON LATHROP
Technical Editor

JERI ROOD
Feature Editor

CINDY LIGHTHILL
Editorial Assistant

DON KELLEHER
Art Director

LORRAINE HAMBLEN
Staff Artist

ROBERT KING
Staff Photographer

THE EDITOR SPEAKS

DOUBLE CLUTCH

GOINGS ON IN GOVERNMENT

A couple of years ago the Federal Trade Commission announced a rule requiring dealers to place stickers on used car windows describing any defects in the vehicle known to the dealer plus the warranty provisions. Car dealers were not happy about the rule. In May of 1982 Congress vetoed it.

This summer the U.S. Supreme Court, after hearing a case having nothing to do with cars, said that Congress has been exceeding its powers by the use of legislative vetoes. If Congress wants to legislate, the decision says, it can do so through the normal procedure of House and Senate passage and Presidential signature. But, said the court, Congress cannot use short cuts or back doors such as legislative vetoes.

Does this mean we are going to see defect and warranty stickers when we shop the used car lots? Consumers Union says yes, but it's not yet completely clear.

Meanwhile, NHTSA has begun crash-testing 1983 cars. Four of the first seven tested failed to provide adequate protection from head injury for the driver or the passenger. They were: Chevrolet Caprice mid-size four-door, Ford EXP two-door subcompact, Dodge 600 mid-size four-door, and Toyota Corolla four-door subcompact wagon. Passing were the Pontiac Firebird two-door, the Ford Thunderbird mid-size, two-door, and the Volvo 760 GLE mid-size four-door.

In tests for chest deceleration, all models except the Ford Thunderbird and Toyota Corolla provided adequate protection for drivers and all seven passed for front-seat passengers. All models also passed fuel system integrity testing and windshield mounting and windshield intrusion testing.

Tests are being conducted at 35 mph, five mph above federal minimum. NHTSA plans to test a total of 25 1983 model year vehicles.

and control means safety

continued

Visual aspects of any lecture include video tapes, slide presentations, chalk board examples and graphic instructors.

other leg is then brought into the cockpit with the same caution so that the driver is standing on the seat.

As with mounting a horse, if you were to attempt to get in a single-seat race car from the wrong side you might find yourself in the embarrassing position of facing the wrong way. Don't scoff; it happens.

Standing on the seat, the driver places both hands on the sides of the roll bar and starts lowering his or her body into the seat. The driver's arms must support body weight while the legs are guided through the center bulkhead to the pedals hidden deep in the front of the chassis.

Seating position in any car, racing or street, is critical to maintaining control of the vehicle. In a race car the driver must be able to perform all the steering and pedal functions while his or her torso is kept virtually immobile by the safety belts.

For comfort, control and to avoid fatigue any driver, whether racing or on the street, should sit as upright as possible. The only reason some race drivers "lie down" is because the car designer is trying to cheat the wind with an extremely low-vehicle profile. It is this profile that forces the driver to lie on his or her back in the couch-like seat.

Of course the feet have to reach the pedals. As they do there should be a slight bend in the knees. And when the pedals are fully depressed, the legs should be straight. Straight, but relaxed. The knees shouldn't lock.

One of the best ways to judge seating position in a street car is with the right leg, according to JRBSMR Chief Engineer James Besmer. Besmer says you're properly seated when you can operate the clutch with your right foot. Most people who model themselves after racers sit too far away from the pedals and overtax their legs.

For steering, the arms should also be slightly bent with the hands in the 10 and 2 o'clock positions on the wheel. As the driver turns the steering wheel, the arm should straighten as the hand reaches the 12 o'clock position.

As with the legs, when the arm is straight it should be relaxed. The elbow shouldn't lock.

If the elbows lock, then the steering must be done by the shoulders instead of the arms. In a race car this is very difficult because of the shoulder harnesses. In any vehicle, steering with the shoulders instead of the arms will tire the driver rapidly. In addition, there isn't the exacting control of the steering inputs with the shoulders as there is with the arms.

Road racing drivers use the 10 and 2 o'clock hand positions for several reasons. One is there isn't much room in the cock-

continued

Before the first morning is over students are already experiencing the feel and performance of their race cars as they practice up-shifting, braking and down-shifting.

pits of road racing machines for the hands to be anyplace else without hitting fixed objects. This position also allows easy reading of the instruments and is relative to the post positions on many small racing steering wheels.

Another reason for the 10 and 2 positioning is the quick steering ratios used in such cars. Often there is only one complete turn of the steering wheel between full left and full right (lock-to-lock). All the steering leverage the driver needs without crossing up his or her arms is within the 10 and 2 o'clock positions.

In stock cars where there is more room and slower steering ratios, race drivers often use the 9 and 3 o'clock hand positions.

Again, people who think they are modeling themselves after the racers often sit too far away from the pedals and wheel, wearing themselves out quickly.

Another piece of advice from school instructors is to not grasp the steering wheel too tightly. White-knuckling the wheel along with propping yourself up in the seat causes tension and fatigue.

Regardless of what you're driving, safety belts are extremely important. In a race car the belts are not self adjusting as they are in most of today's street machines. The belts must be put on loose (the shoulder belts snap into the special quick-release seat belt buckle individually). Then the lap belt is tightened, keeping it low on the hips. The individual shoulder straps are subsequently tightened. The belts should be tightened only to a snug feeling. If they are too tight they can cause chafing and interfere with breathing.

After each car is tailored to the individual (seat move, extra padding added here and there, pedals adjusted, mirrors aligned, belts snugged, etc.) the students turn their attention to the instruments and controls. Learning the location and function of each gauge, switch and device is critical to safe vehicle operation on the road and track.

Centered in the bulkhead-dash of the race car is a chronometric tachometer with two indicators: one white and one red. The white needle follows the engine rpm as it runs, while the red one remains at the highest rpm turned. This telltale seems to intimidate more students than any other part of the course.

Flanking the tach on either side are the water temperature and oil pressure gauges. No idiot lights, speedometer, odometer, clock, fuel gauge or fancy computers with digital read-outs.

Also on the bulkhead are an ignition switch and starter button. There's also a

Students' performances are critiqued every step of the way with complete explanations of how to correct mistakes.

"Concentrate, you've got to concentrate," the instructor repeats and repeats during the course.

switch for turning on the taillight during rainy weather. The only other switch on the car is a master cut-out or "kill" switch on the roll bar.

Of course there is a gear shift lever. However it doesn't take more than the flick of the fingers to move it from one gear to the next. Deep in the forward part of the cockpit are the pedals: accelerator, brake, clutch and dead. The "dead" pedal is a footrest so the driver won't ride the clutch.

Once all the students are oriented to their cars' cockpits, it's time for them to become familiar with the vehicles' performance and feel. Although the speeds obtained initially would be too fast on the street, they're very slow for racing.

The transferable racing-to-street lesson here is: Anytime you're driving a car that is unfamiliar to you, you should spend as much time as possible becoming acquainted with how it behaves before testing its capabilities.

Now don't argue that you aren't going to press a street car to its maximum performance so you don't need to know what its capabilities are. You never can tell when you might have to use the brakes to their greatest possible degree or take extreme avoiding actions with the steering wheel.

The students begin by accelerating up the backstraight using 3000 rpm shifting points: first, second, third, fourth. Running at the edge of the road at 3000 rpm in fourth gear (about 60 mph) they approach a series of four pylons.

When the front wheels are even with the first pylon (the nose of the car can't be seen from the cockpit) the driver applies the brakes evenly, building up the pressure. Three-quarters of the way to the second pylon they down shift to third gear. The idea is to be in third gear with the clutch out when the front wheels pass the second pylon. Down to second for the third pylon and first for the fourth.

From the first pylon to the last driver has been using the brakes.

After passing the last pylon, the students carry even throttle to the turn-around pylon. Once headed in the opposite direction they stop and wait for the assistant instructor's go-ahead.

Then they accelerate down the backstraight to another series of four pylons. Then it's brake-shift-shift-shift and even throttle to the turn-around.

In one direction the braking is easier because it is uphill; in the other it's harder because the cars are going downhill.

After the turn-around the chief instructor will either stop the students to give some advice or wave them on for another pass.

The small, 900-lb racing cars accelerate briskly even with such high gearing and low rpm. Running the 115-horsepower engines to their 6800 redline, the cars are capable of reaching 60 mph in six seconds. They can cover a quarter-mile from a standing start in less than 15 seconds. The high gearing produces speeds in each gear of 80, 90, 115 and 130 mph.

Needless to say, the brakes more than match the car's acceleration. And with a lateral acceleration (cornering capability) approaching 1.25-G, the Formula Ford racers handle as well as any purebred racing machine.

Braking and shifting are more than just stomping and stabbing actions. At the JRBSMR they teach heel-and-toe and a modified double-clutch technique.

The ball of the right foot is used for all braking.

At the proper moment, the driver pushes the clutch in and moves the gearshift lever out of gear to neutral. Then the right foot is turned sideways at the ankle (a little knee movement helps) so that the right side of the foot presses on the accelerator pedal while maintaining braking pressure with the ball. Then the next lower gear is engaged and the clutch is released.

The idea is the raise the engine's rpm to the speed that matches what the gears are turning. For example, when approaching the first pylon at 3000 rpm in fourth gear, the driver applies the brakes. At the shifting point the engine rpms have fallen off the 2500 in fourth gear. This 2500 rpm in fourth gear is equal to 3000 rpm in third. So when the driver pushes the accelerator with the heel-and-toe action between gears, the aim is for 3000 rpm.

Without this blipping of the throttle during downshifts, the dogs in the four-speed Hewland Mk. 9 non-synchromesh gearbox make a terrible grinding noise. Also, releasing the clutch when the engine is running much slower than the actual speed of the car requires, results in additional rear-wheel engine braking action which could cause control problems. Besides, brakes are cheaper and easier to maintain and repair than are engines and transmissions.

The morning's sessions don't end with just a break for lunch. Besmer cautions the students about eating greasy foods or a heavy meal before getting into a race car. The body has to work to digest food. That work robs the driver of energy needed to concentrate and control the vehicle. That's a lesson to be remembered by all drivers.

In addition, he points out, the combination of the food and the movement of a racing car don't always sit well with the stomach.

"You have a problem with your lunch in the race car," Besmer announces in his Swiss accent "and we take you and the car to the garage area. There we have a hose we wash down the inside of the car with while you are in it."

This might be a welcome solution to some of the students as it isn't even noon yet and already the temperature is 100 degrees.

After lunch and another classroom session, the class moves to a flat portion of the backstraight for hard braking practice. The idea is to bring the car to a stop as quickly as possible. This is done with the clutch in (no gear changes in the braking area) and building up the pressure on the pedal to within a hair of locking the wheels.

In this case it's up through the gears to 3000 rpm in fourth and then on the brakes at the pylon. Once stopped the driver gets a lecture from the instructor about: not braking hard enough; getting on the brakes too hard too early and not building up the pressure; locking the brakes; not

continued

Before tackling the open track, the students spend one last session following the school's station wagon to learn the best "line" around the course.

Students are observed every step of the way from the first time they get into the race cars until they climb out ready for graduation.

James Besmer was once called a Prussian drill instructor by a student. Actually he exercises the same control blended with gentleness that any Air Force military training instructor does.

When the former Jim Russell Series and Quebec Formula Ford champion James Besmer talks, students listen.

In addition to race driving, James Besmer has instructed gymnastics, mountain climbing and skiing.

"Unwind the steering gently and the car will stay balanced."

(right)
"Brake and change gears in a straight line."

and control means safety

continued

The race cars not only follow the station wagon around the course, they follow it from one practice area to another, even when it means going around the track backwards.

stopping short enough; doing it better . . . before being sent around to try it again.

This session and break are followed by another classroom period with slides and video tapes.

Then they pile into the school's old, beat-up, jack-of-all-trades Chevrolet station wagon for a tour of the full race course. During the slow ride the instructor is careful to point out every detail the students will have to remember about the track. Every braking point, every shifting point, every turning point, every clipping point, and the results of not doing it right at every point.

Before calling it a day, the students make a detailed examination of the track . . . on foot. It is this kind of attention to details that allows racers to drive as fast as they do. A luxury that highway drivers can't avail themselves of.

On the second day it is practice, practice, practice. Everything they learned the day before about approaching a corner is combined with actually turning into the corner.

In the JRBSMR everything including the braking and gear changes must be done in a straight line before turning the steering wheel into the corner. The JRBSMR instructors don't pretend that trail braking (carrying light braking action into the corner) doesn't exist. They just say that it has its place, which isn't during a driver's initial learning cycle.

Steering into a turn isn't a sharp manuever, but the steady, smooth turning of the wheel until the car is headed where the driver wants it to go in a balanced state. Then it is even throttle to the clipping point of the turn. As the car starts to exit the corner, the driver unwinds the wheel slowly. Unwinding by itself is enough to cause the car to gain speed without the driver pushing harder on the gas pedal.

At first the students only tackle one of the track's more challenging corners under the watchful eye of the instructor. Their performances are critiqued with a complete explanation of how to correct mistakes and improve their execution given constantly.

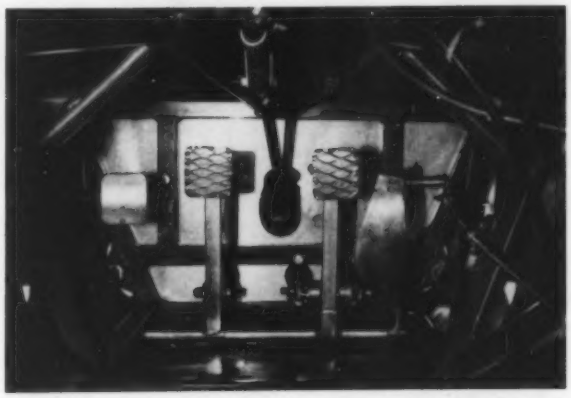
Later a second and then a third corner are added to the routine. Again, they are given complete feedback on their performance.

Again the station wagon is pressed into service as a tour bus as the instructor reestablishes the critical points around the track.

After lunch all 10 students follow the station wagon around the complete course in their race cars to pick up the vital marker points from the perspective of the racing seat. For two laps one driver will follow 20 feet behind the Chevy with the other students trailing along in single file. Then the lead student drops to the end of the chain as the next driver takes station directly behind the wagon.

continued

continued



Deep inside the Van Dieman chassis are pedals (left to right): dead, clutch, brake and accelerator. See how the gas pedal is specially built for heel-and-toe operation.

After a break it's back into the station wagon again for a refresher tour of the track and critical points. Then the students are sent for 10 laps on their own with a rev limit of 3000 rpm.

Well, not exactly on their own. The chief instructor makes his way around the circuit observing each student's performance and taking notes during the sesson.

After the 10-lap session has been checkered-flagged, the students pull into the pits and climb out of their cars. They're then told to sit on the pit wall and not talk to each other until after the chief instructor has finished with them individually. This is a lesson they can use later if they continue on with racing. When finishing a practice session a racing driver always takes time out to self-evaluate his or her own performance.

At this point the chief instructor talks to each student about his or her performance during the session, pointing out mistakes, recommending areas for improvement and building confidence in their ability.

There'll be one more open track session of 10 laps before the second day ends. Some of the better students will be given a 200 rpm higher rev limit while the others work to correct their mistakes. Again, an evaluation follows the session.

The third day is a long series of 10-lap practice sessions with higher and higher rev limits. Each session is of course followed by an evaluation from the chief instructor.

And graduation is like victory circle at any race complete with champagne.

(above, left)
It takes a team of dedicated mechanics to keep a school's racing cars running. Think of them as graduate students on scholarships; they do the work for the chance to drive the cars in the school's championship racing series.

Where did you get your driver's license: correspondence school?

Using the information in this article for anything other than basic skills improvement is dangerous to your health, and the health of your passengers and other motorists on the highway. This story will NOT make you a race driver, nor will it qualify you to drive fast on the highway. To try to use this information for fast highway driving would be similar to taking an eye test over the telephone or getting your driver's license from correspondence school; ineffective to say the least.

Leave the racing to the racers on the race track.

Remember, you're not alone out there

Driver ERRORS and how to AVOID THEM

Circumstances surrounding accidents seem to indicate that people think they are, or should be, alone on the road. Maybe that's not true, but why else would people take up the entire road on mountain highways, crossing over the center line to straighten out the curves? Why else would people motor along at a distance of three feet from the bumper of the car ahead and flash their lights? Why else would people speed through intersections after the lights have turned red?

If it is true they forget they are not alone out there, it may explain some of the accident statistics. The National Safety Council lists six major types of what it calls "improper driving" that can lead to traffic mishaps. These are speeding, right of way violations, driving left of the center line (or improper lane changes), improper overtaking, improper turns, and following too closely. These driver errors are contributing factors in over 77 percent of all accidents (property damage accidents as well as fatal and injury accidents).

Of course there are other sources of accidents. Three sources provide the factors that lead to an accident — the driver, the vehicle, and the road (which would include weather and the other vehicles out there).

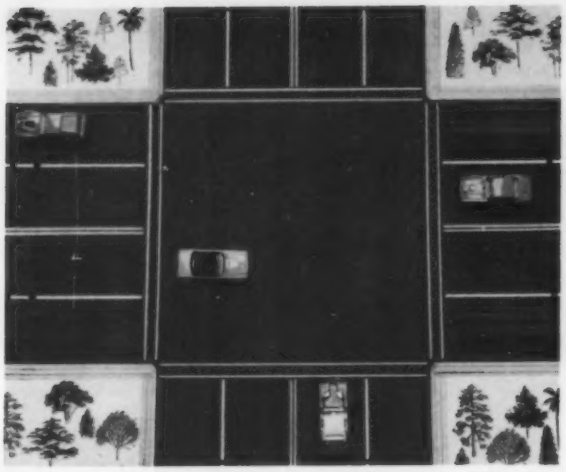
The driver can control only himself. The road is totally out of his control. He can only be aware of it and avoid driving when road conditions are bad — too much traffic, bad weather, road repairs.

As for the condition of his vehicle, he can only control that *before* he drives it, and avoid driving when the car's condition is bad — bald tires, faulty steering or brakes. He can even avoid driving when his *own* condition is bad — tired, drunk or preoccupied.

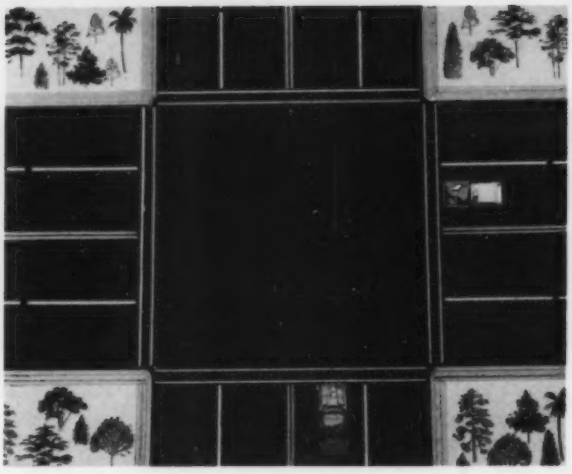
continued

You may feel like you're alone out there. . . .

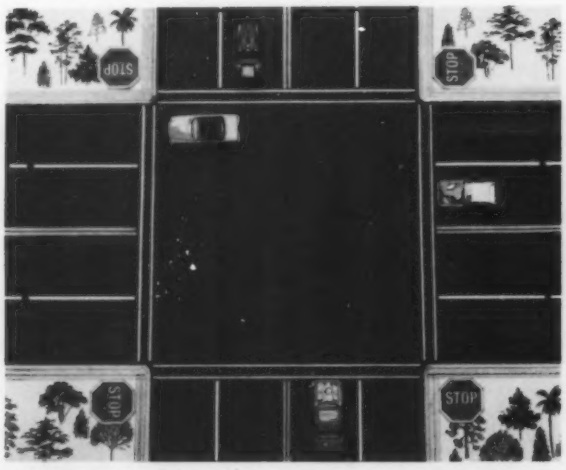
But far more often, it looks like this. Remember the others on the road, and drive as though they have forgotten you're there, that is, very carefully.



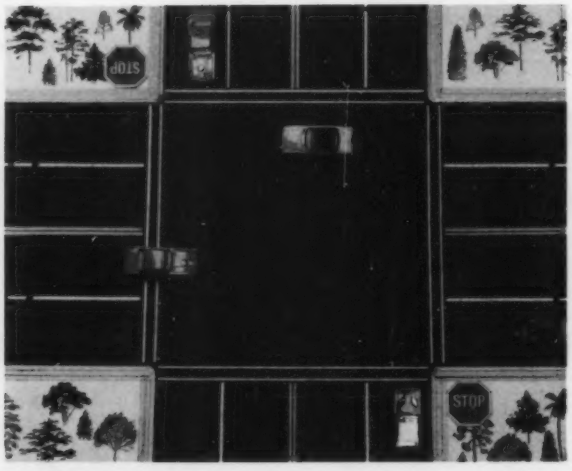
At intersections which have no control signs, the first car at the corner is the one which may go first. Drivers must yield to cars already in the intersection.



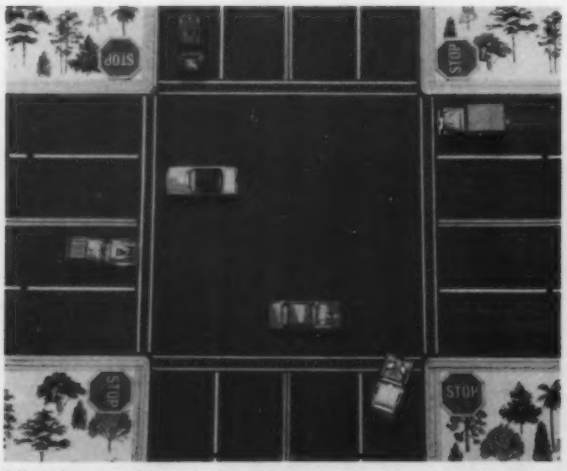
If two cars on cross streets come to an uncontrolled intersection at the same time, the car to the right is the one which may go first.



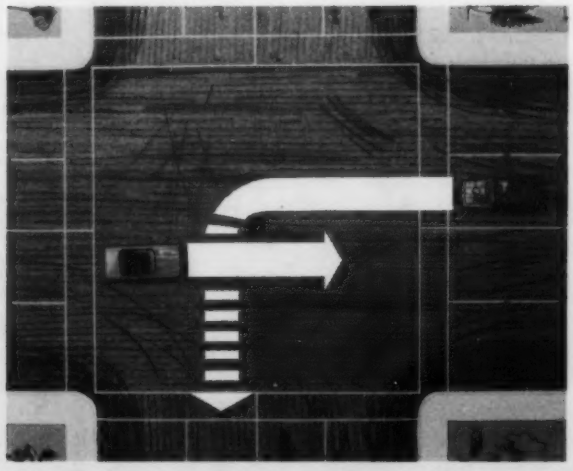
At four-way stop intersections, the same two rules apply; the first car at the intersection goes first, and the one to the right moves if two arrive at the same time.



If only one street of the intersection has a stop sign, the motorists at those stops must wait for any cars that are close enough to present a hazard to them before they move.



Likewise, any driver who is making a turn must wait for traffic to clear before he attempts a turn.



When making a left turn, the driver must remember the others on the road and allow them the right of way.

continued

Once he's on the road, he can control only his own actions. He cannot control the others out there; he can only be aware of them. The driver's actions, and his acknowledging and avoiding the others, will decide, at least in part, whether an accident will occur.

Some accidents may indeed be unavoidable, but *driver errors* are largely avoidable through the use of caution. Eliminating driver errors might not eliminate 77 percent of all accidents. However, the elimination of one factor in a potential accident situation might be enough to make the "unavoidable" avoidable.

For instance, a car speeding on a wet street might skid and hit another car in the next lane. Now eliminate the speeding. No speeding, no skid, no collision. The streets are still wet and the other car is still there, but there's no accident.

Let's look at ways to eliminate some of those driver errors by becoming more aware of the other drivers. We can't cover every possible situation here; that would take too long. Indeed, the categories of the National Safety Council's improper driving chart are general ones and have to be, for the purpose of gathering statistics. Therefore, we'll just mention a few situations in which drivers show some disregard for the others on the road.

Speeding: First on that list was the problem of speeding. The National Safety Council's data for 1981 shows: 21.3 percent of all accidents involved speeding (including "speed too fast for conditions"); 17.7 percent of accidents that resulted in injuries involved speeding; and *33.3 percent of all accidents with fatalities involved speeding.*

That is a third of the fatal accidents.

The law enforcement authorities combat this problem with the posting and enforcement of speed limits. There are good reasons for speed limits.

Speed limits are designed to bring about some uniformity in the traffic flow, so everyone will know what to expect the other cars to do. Where there are speed limits, and where people stick to those limits, traffic is predictable. Traffic flow needs to be predictable, because there are so many people out there for different purposes, going to different destinations, with different degrees of driving proficiency. It's dangerous enough without the extra hazard of trying to drive 15 mph faster than everyone else.

Further, speed limits are designed as the law for the maximum speed in optimum conditions. That is, the speed on dry roads, with good visibility and with a good traffic spread (and we might add, in daylight hours). Anything that limits these conditions lowers the maximum safe speed, no matter what the posted limit might be. The limitations might be visibility (rain, fog, dust or the like), road surface (paved or unpaved, as well as water, ice, gravel and such), and road condition (holes, patches). As we said, these are not under the driver's control. His speed is. He can slow down. A motorist might be ticketed for "speed too fast for conditions" even though he was traveling below the legal *posted* limit.

Perhaps one of the biggest reasons for speed limits is the fact that the faster a car is moving, the more time and space it takes to stop it. We have provided a chart that gives a general idea of this problem.

The average driver's reaction time upon seeing an emergency situation is three-quarters of one second. This includes a perception lag, recognizing the danger and making a decision on action. This will be true no matter what speed he is moving.

The big difference is in the braking distance, that distance it takes to bring the car to a halt. For example, according to our chart, at 55 mph a car will stop in a total of about 225 feet, with a reaction-time distance of 60 feet and a braking distance of 165 feet. At 70 mph, the reaction-time distance is 77 feet, not much greater than the 60 feet at 55 mph. But the braking distance is 304 feet, almost twice what it is at 55 mph.

The farther you have to move to stop, the more likely you'll hit some of the others out there.

The solutionf to speeding is simple: Don't do it. It's not only illegal and dangerous, it's also not necessary. Time yourself on a trip you make regularly, say, from home to work. The next time, take the same route a little slower. The time difference will probably not be that great. The others on the road might arrive sooner than you do, but not by much.

Right of way: Right of way violations, especially, seem to indicate a disregard for the others on the road, or even annoyance that they are there. Simply put, taking the right of way shows a "me first, then you" attitude.

continued

STOPPING DISTANCES FOR PASSENGER CARS
under normal, dry and level road conditions

MPH	REACTION TIME DISTANCE*	BRAKING DISTANCE	TOTAL FEET
10	11 feet	9 feet	20
20	22 feet	23 feet	45
25	27 feet	34 feet	61
30	33 feet	45 feet	78
35	38 feet	67 feet	105
40	44 feet	81 feet	125
45	49 feet	110 feet	159
50	55 feet	133 feet	188
55	60 feet	165 feet	225
60	66 feet	206 feet	272
65	71 feet	231 feet	302
70	77 feet	304 feet	381

*Distance car travels in ¾ of a second.

This chart shows *approximate* distances it takes to bring a passenger car to a full stop from various speeds. The chart is purely illustrative; it is presented to make a point. Because of the many factors involved in braking it is not possible to create a chart that covers all possible situations.

Many of you can describe an accident at an intersection. One driver makes a maneuver, perhaps a turn, that puts him in the path of another car, and they collide. Perhaps they didn't see each other until it was too late. But more likely the driver who took the right of way thought the other would let him get by, or that the other was farther away than he actually was. The driver who had the right of way taken from him may also have misjudged the distance, or perhaps he didn't think the infringing driver would really get in his way. But he did, and they collided.

What is this kind of accident but the result of a "me first" attitude?

We want to make a side comment here: In actuality, you cannot "take" the right of way. If you try to take the right of way, the other driver has to *let* you have it. He might also insist on the right of way. In that case, if one of you didn't give it away, there would be a collision.

However, when you and another driver move at the same time, usually you both stop short and there's a brief hesitation before one of you decides to let the other go. That's the only way it works; someone *lets* the other guy go first.

To help avoid the disagreements, and possible accidents, with the others out there, the traffic safety people have established certain rules for right of way.

At an uncontrolled intersection, one with no lights or signs, if two cars approach from cross streets, the first one at the intersection goes through it first.

If they both arrive at the same time, the right of way goes to the car on the right.

These two rules apply also at intersections where there are stop signs for both streets. Of course, where only one street has a stop sign, the car at the stop sign must wait until all other cars are out of his way.

If one car is turning, the rules are the same — first at the intersection moves first and the car to the right moves first. If two cars moving in opposite directions on the *same* street arrive at the intersection at the same time and one of them is turning, the turning car should give right of way to the car going straight.

Signal lights can eliminate all the confusion. They are installed because no one is alone on the road; someone else will usually be at the intersection at the same time you are. But lights must be obeyed. Drivers who run through red lights are disregarding the other cars that are out there, and they are endangering everyone's safety.

Sometimes traffic lights are re-set for times when there might not be anyone else on the road. At times when the road is not used so much, usually at night, the lights may be flashing. Sometimes the lights will be flashing yellow for one street and red for the cross street. At other places, the lights might be flashing red for both streets.

Flashing red lights should be treated like stop signs — stop and proceed when it is safe. Flashing yellow lights mean "proceed with caution." Note we said there *might* not be anyone else on the road. Treat any intersection as though you might have to stop, even if you have a green light.

Proper and improper turns: Do a turn only where it is legal — that is, only where it is not prohibited by a signal, and only when the turn signal, if any, permits it. To do otherwise would surprise and confuse the others on the road, and it would probably attract the attention of the police.

In most places in the U.S., it is legal to do a right turn on a red light. If you decide to execute one of these turns, remember those others who are out there. Make the turn only when they are out of the way and you won't interfere with their movement.

Likewise, watch for the others if you are planning a U-turn. Always use your left turn signal, but remember they will not be expecting you to do a U-turn. Allow yourself plenty of room. Of course, U-turns are not permitted everywhere so follow the local laws.

Certain intersections are called "blind intersections," and with good reason. These are the ones where buildings or bushes or other obstructions hide your view of the cross street and its traffic. Whether it is an uncontrolled intersection, or even if there are signs or signals, be very careful. Expect there to be other cars out there. Proceed with extreme caution, and perhaps even honk your horn as you move out. You want the others to know you're out there too.

Left of center: Driving left of the center line could also be called a "right of way violation," but it can lead to the worst of all accident situations — the head-on collision.

The most common time for being left of the center line is during a pass. Passing is fine if done carefully and at the right time. The "wrong time" to pass refers to the possibility of unexpectedly meeting another car.

First of all, don't pass on a hill. The reason is obvious: There might be a car approaching on the other side of the hill.

For the same reason, don't pass on a curve. There may be someone around the next bend. Even if there isn't anyone there, the additional speed you have to apply to pass on a curve could put you out of control.

Other places where it is illegal and unwise to pass are at intersections, at railroad crossings, and on bridges or in tunnels. At these locations, the chances of collision are too great and the maneuvering room is too small.

The lines on the road are usually a good indicator of whether or not it's legal (and safe) to pass. A solid yellow line in your lane means "Do not pass." A broken, or dotted line in your lane means "You may pass with caution."

On long, straight, level roads the line will be a dotted one, signifying that it's safe for traffic on either side to pass, if there are no oncoming cars. The solid lines are normally used where something limits the visibility, as on roads with hills or curves, like in the mountains. If you're approaching a hill or curve, the solid line will appear in your lane some distance

before you reach the curve or top of the hill, telling you there isn't enough visibility for a safe pass. At the crest of the hill, or at the end of the curve, the line will disappear when you can see far enough to pass.

Always watch these lines, and obey them. They have been painted on by the highway department as an aid for you, based on the space necessary for you to pass safely.

When you can see that you have the necessary space to make a pass, get to the safe following distance, two seconds behind the car you'll pass (which we'll explain a little later), and match his speed. Check the road ahead for cars in the opposing lanes. Check behind you for cars that may be starting to pass you. Look over your shoulder to eliminate the blind spots. Signal your intention to pass with your left turn signal and move out into the opposing lane. Accelerate your car and pass.

Watch the other car as you pass. He might speed up or make some other movement if he hasn't seen you. He might have the impression he is alone out there.

Pull back into your own lane when you see the passed car in your inside rearview

continued on page 26

You won't risk following too closely if you remember to allow a two-second gap between your car and the one ahead of you.

(left)
Some people just *have* to drive faster than you, even when you're doing the legal speed limit.

(right)
Never pass a vehicle on a hill. Another car may be just out of sight over the crest.

(below)
A curve is a bad place to pass also.

RING
POLICE DEPARTMENT, SGT FACES SPEAKIN'. ... THAT'S RIGHT, M'AAM ... "FACES" ... SGT A. THOUSAND FACES, CAR THEFT DICK AT YOUR SERVICE'. "PURLOINED PONTIACS, VANISHED VOLKSWAGENS... YOU LOSE 'EM - WE FIND 'EM".
YES, M'AAM "THOUSAND" IS AN UNUSUAL MIDDLE NAME, BUT MOMMY THOUGHT I WAS A GRAND BABY... YUK YUK
... A LITTLE COP HUMOR, M'AAM. "A" STANDS FOR IS NONE O
WHAT'S YOUR PROBLEM? WELL, SH
OF PROBLEM, M'AAM! WH
SOMEBODY STOLE YOUR
SURE REACHED OUT AND
YOU NEED A DETEC
the man with A. Thousand Faces
TEMPUS FUGITS, PARDNER! LET'S GET TO THE SCENE AND SEE WHAT'S IN THE OLD CLUES CLOSET!
A.J. FOYT! YER DOIN' A.J. FOYT!
POLICE
HI M'AAM! I'M SGT FACES AND YOU MUST BE THE LITTLE LADY WHO WAS RIDIN' YESTERDAY AND WALKIN' TODAY?
SHIRLEY TEMPLE! YER DOIN' SHIRLEY TEMPLE!
RIDE-A-WEE APARTMENTS
IT'S NOT FUNNY! SOMEBODY STOLE MY NEW HUH-HUH-
HONDA!
AND I LEFT MY PURSE INNA BACK SEAT!
LOOT! PLUNDER! YOU'VE BEEN WIPED OUT, M'AAM. THOSE THIEVES HAVE YOUR CAR... YOUR MONEY... YOUR CREDIT CARDS... YOUR HOUSE KEYS AND YOUR NAME, ADDRESS AND PHONE NUMBER. BETTER INSTALL SOME DEAD-BOLT LOCKS, M'AAM...
ATTILLA THE HUN! YER DOIN' ATTILLA THE HUN!
WE'VE GOT 15 JUVENILES STUCK INNA HONDA AT FIRST AND MAIN ... GET SOMEBODY DOWN HERE WITH A CAN OPENER AND A SHOE HORN...
CRACKLE

'AAM. SORRY M'AAM, WHAT THE
ONE OF YOUR BUSINESS. NOW, THEN,
L, **SHAME ON YOU**, BUT NOT **THAT** KIND
M! WHY DID YOU CALL THE POLICE?
OUR CAR? WELL, M'AAM, YOU
T AND TOUCHED THE RIGHT SOMEONE.
FTECTIVE ... AND THAT'S **ME!**

CHARLIE CHAN! YER DOIN' CHARLIE CHAN!

OH, I'LL GET 'IM, M'AAM AND WHEN I DO I'LL SAY: "**YOU DIRTY RAT!** YOU STOLE THIS LADY'S CAR! YOU'RE PROBABLY THE SAME DIRTY RAT WHO SHOT MY BROTHER! IT'S THE BIG HOUSE FOR YOU, **PUNK!**" THAT'S WHAT I'LL TELL 'IM, M'AAM!

BURT REYNOLDS! YER DOIN' BURT REYNOLDS!

FACES

FACES

SORRY M'AAM, ALL WE WANT ARE THE FACTS. JUST REMEMBER - THE ONLY THING YOU HAVE TO FEAR IS FEAR ITSELF. SO TELL ME - **WHERE WAS YOUR CAR PARKED?** YOU ALWAYS PARK YOUR CAR ON A DARK, DESERTED STREET... SO THE BAD GUYS WON'T SEE IT. NOT SMART, M'AAM. **WAS YOUR CAR LOCKED?** IT'S ALWAYS UNLOCKED BECAUSE YOU LEAVE THE KEYS IN THE IGNITION AND YOU WOULDN'T BE ABLE TO GET IN IF THE DOORS WERE LOCKED. ... IT DON'T COMPUTE, M'AAM...

... BUT DON'T WORRY, WE'LL SNIFF-OUT THE CULPRITS!

PRESIDENT LINCOLN! YER DOIN' PRESIDENT LINCOLN!

LASSIE! YER DOIN' LASSIE!

BUBBLEGUMMERS! YOU WERE RIPPED OFF BY JOYRIDIN' BUBBLEGUMMERS, M'AAM! ALL THE ODDS BAID YOU WERE HIT BY MONEY THIEVES. BY NOW I THOUGHT YOUR LITTLE CAR WOULD BE IN LITTLE PIECES BEING SOLD AT A BIG PROFIT BY SOME HOT CAR MIDDLEMAN!

GONE! LOST! GOOMBYE!

TWO QUESTIONS, SARGE. DID THOSE KIDS HURT MY CAR? ... AND WHO'S YOUR WEIRD LITTLE FRIEND?

THE INVISIBLE MAN! YER DOIN' THE INVISIBLE MAN!

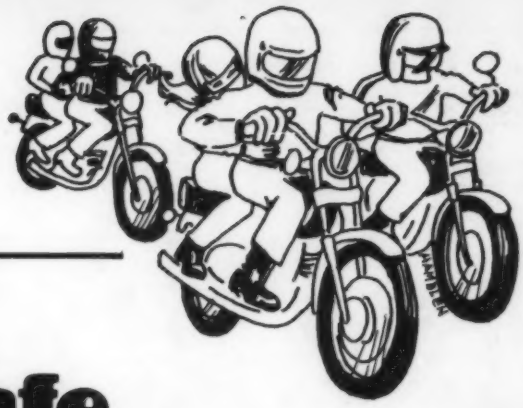
15 KIDS IN A HONDA? EVEN THE HONORABLE HONDA-SAN WOULDN'T RECOGNIZE IT. AND MY PARDNER? MY SHADOW? MY SIDEKICK? THAT'S CHESTER E. (FER ELLIOT) MESS. BUT I LIKE TO THINK OF HIM AS "THE MAN WITH A THOUSAND FACES" (CHUCKLE) NOW THEN, M'AAM, LET'S HEAR YOU SAY "GENTLEMEN, START YOUR ENGINES..."

A.J. FOYT! YER DOIN' A.J. FOYT!

POLICE

KELLEHER

group riding



can be Fun and Safe

This is the ideal size group riding in the ideal formation. Four motorcycles in a staggard formation with two seconds between direct following machines and one-second stagger intervals provides the most safety.

While the motorcycle may be the perfect form of individual transportation, it is also ideally suited to group activities. And you don't need a pack of a dozen or more bikes to group ride. One other motorcyclist and you're in business — in a group.

Basically, group riding is fun and provides the camaraderie of others with similar interest. However, the real advantages of group riding come in safety.

As groups draw a lot of attention, it is less likely a motorist is going to say "I didn't see the motorcycle before I hit it." And if you do have an accident, all the group isn't going to be involved. Therefore, there'll be people available to administer first aid and go for help.

Group riding also means there'll be somebody there to help if you have a breakdown.

The fact that groups generally travel slower than individual cyclists also makes them safer.

Another safety factor in group riding is fatigue — actually the lack of fatigue. Group riding takes discipline and concentration, both of which help combat fatigue. In addition, group rides are usually preplanned to include rest stops which go a long way in fighting fatigue.

This is not to say there aren't disadvantages in group riding. Already cited is the slower pace which can wear on some riders' nerves. And the fatigue-fighting factors of discipline and concentration require more attention and precise riding than some riders are capable of. In fact, in groups of more than three riders things can happen faster than the inexperienced group rider can handle.

Large groups of motorcycles can also cause traffic congestion. Additionally, large groups irritate other people (the "Hell's Angels" image).

The ideal size for group riding is four motorcycles. However, a more realistic figure for large clubs is six to eight machines per group, with plans for breaking these groups down into smaller units when in traffic. The main problem with larger groups of motorcycles comes when car and truck traffic doesn't recognize the group as a single unit and cuts into the cluster.

While side-by-side riding may be fun, it is really more hassle than it's worth. And it can also be dangerous. The safest way to group ride is in a staggered formation. Each rider staying a full two seconds behind the bike directly in front and one second away from the cycle on the other side of the lane.

Regardless of how large or small the group, when the situation becomes risky the group is going to have to break up for the safety of all. For example, if a group were navigating a twisting mountain road and encountered fallen debris, the best way to avoid the danger would be single file with a full two-second interval between motorcycles.

As pointed out earlier, things happen too fast in large groups for inexperienced riders to deal with. Even the experienced riders have problems. Group riding does require more operator attention than being on one's own.

For example, a rider who hasn't been paying close attention may miss the fact that the bikes in front have been weaving slightly to avoid a road hazard. Suddenly the cycle directly in front moves over and the inattentive rider is on the obstacle

with little or no time to identify the hazard, predict what can happen, decide what action to take and execute a safe escape.

Then there's the "accordion effect." One minute a rider is pushing the machine hard to keep up. The next, he's on the brakes to keep from running over the rider in front.

As was said before, motorcycle groups generally travel at lower overall speeds than do single machines. A perfect example of why this happens occurs when turning at a stop sign. The riders will wait at the intersection in pairs, then make the turn and accelerate. Yet they can't accelerate up to cruising speed because they have to wait for the group to form back up. City cross traffic is another thing that plays havoc with groups.

Another problem is passing and lane changes. While passing is done individually, lane changes occur starting from the rear of the formation.

It should be clear by now that numerous rules have to be established for the group before any of the motorcycles turns a wheel.

First of all are the individual responsibilities. Every rider must watch out for the others. Maintaining proper following distance is another individual task necessary to prevent the "yo-yo" or accordion effect.

Hand signals have to be understood and passed on. Or if CB radios are being used, the chatter has to be kept to a minimum. In fact, usually only the road captain and the assistant at the back (the drag) are allowed to speak.

And then there's the cardinal rule of not pulling out of formation for any reason other than a breakdown. In the case of breakdowns, usually only one other rider will stop with the disabled machine while the rest of the group proceeds to the next available stopping area. There they will wait or send back another rider to get a report on the problem. Of course, with CB radios all they have to do is call for the report.

When using CBs the drag keeps the group informed of traffic from the rear. This is especially important when it comes to lane changes and passing. The drag also keeps the lead rider (the road captain) informed of problems in the group. And the drag also evaluates individual members riding techniques and problems.

If the group is working without radios then the drag must keep the lead informed, using predetermined signaling. Also, the drag will usually be the one to pull out with the individual who suffers the bad luck of a breakdown.

The leader or road captain is responsible for the preride briefing. This is to include what CB channel and call sign to use as well as explaining and demonstrating the hand signals that will be used.

continued

Before the ride begins, the leader demonstrates hand signals that will be used.

Another part of the prebriefing is the route to be used, including the exact location of the final destination.

continued

City traffic can play havoc with group riding and may force staggered formation into a single file unit with two seconds between each motorcycle.

The prebriefing should also include the route to be taken with the exact location of the final destination as well as emergency assembly points.

If the group is to be more than six riders, then it is the road captain who decides on break-off points and riding order.

The road captain must also make sure that any new riders in the group understand the formations, following distances, passing procedures and emergency policies.

Most experienced clubs have training programs for new riders. Then when the new rider has gained enough experience they'll assign him or her to a specific riding position — usually just in front of the drag.

Once on the highway, the road captain takes and holds the lead. The leader always insures that traffic is clear for the entire group. Once into traffic, the lead holds the speed down until everyone is in position.

When passing, the lead checks with the drag for clearance. Once the road captain has the OK from drag, he or she gets far enough ahead to allow others to pass and get back in. In fact, the road captain stays out as long as the traffic is clear or until the group is back in.

The road captain also notifies the group well ahead of any time that a stop is planned. And when parking, the lead considers how many are in the group and the amount of space necessary to accommodate them all.

The key to group riding is establishing who is going to do what for each situation. And the only way to know what situations can develop is through experience. That's why only experienced cyclists tackle group riding. There are just too many things that can go wrong.

Most inexperienced motorcyclists have enough to do when concentrating on their own riding, the road and other traffic. Having to divide this attention with other riders is usually more than the green rider can cope with.

Most veteran group riders agree that they only ride with other motorcyclists whose riding habits they know. They have to be able to trust the other riders in the group. And the rules must be established before hitting the road.

Who moves first? Who is going to do

Every rider must watch out for the others passing on signals such as this warning about water on the road.

what? Usually it's the lead rider who moves first. And usually the lead rider operates near the road's centerline. Therein comes another general group riding rule: The rider nearest the centerline has the right-of-way . . . and needs it.

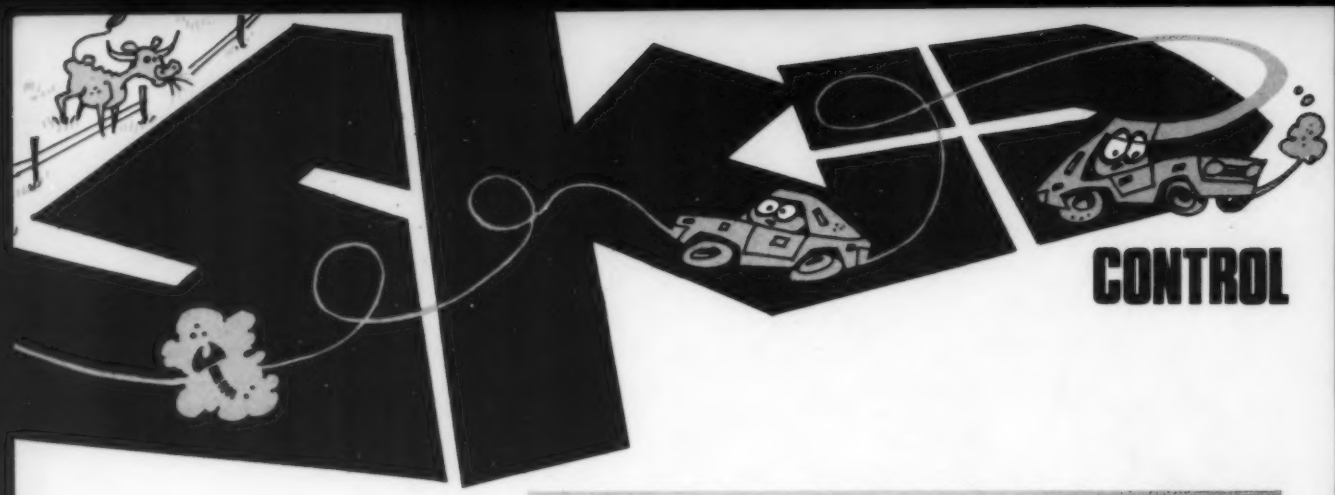
In the smallest group — two riders — some of the same problems exist, some different ones develop and most all the rules still apply. To begin with, a communications system is still going to have to be established before taking off. And all procedures are going to have to be firmly set down before the bikers move.

The real hazard for a group of two motorcyclists is the temptation to ride too fast. Two riders seem to bring out the competitive spirit in each other. They start playing and passing each other. This is especially true if the road is at all winding.

The result is they start running faster. Then they run closer. Then something goes wrong and they either bounce off one another or one runs over the other. No matter how it happens or why, the other rider becomes the biggest hazard.

Regardless of how big or small the group, the most important thing is individual discipline.

Group riding can be fun and safe as well as providing camaraderie.



CONTROL

We've been telling you since January 1982 that the performance cars were making a come back. A come back with a ferocity that can send you into a skid — literally.

At first it was only the manufacturers putting performance back into their traditional muscle cars such as the Camaro, Firebird and Mustang. Now, however, you can buy as much performance as you can afford throughout the entire range of a manufacturer's line.

For example, from Ford Motor Company you can get a turbo-charged economy car such as the Escort or, if you're among the lucky 10,000 buyers, you might get a two-seater EXP Turbo. Stepping up the line there's a Thunderbird Turbo Coupe. At the top of the line, in Ford's sister division Lincoln-Mercury, performance comes in an all-new Mark VII LSC with either a 5-liter gasoline V-8 or turbo-charged 2.4-liter I-6 diesel.

Of course, when it comes to traditional muscle cars you get a choice at Ford. They've upped the horsepower of their Mustang 5-liter V-8 or, for the first 15,000 real sports oriented buyers, they have a special 14 psi turbo-charged 2.3-liter Mustang SVO (for Special Vehicle Operations, Ford's racing unit).

Now don't think that Ford has a corner on the performance market. General Motors and Chrysler are right there with their own high-performance vehicles, too.

As we've also pointed out before, today's performance cars aren't just horsepower-burning hulks. They can also stop and corner with the best the world has to offer.

But therein come the problems. Because they can brake and corner as well

In an elegant five-passenger luxury touring coupe such as this Mark VII LSC the extremely quiet, luxurious open-road ride can combine with taut feel, spirited handling and fast response to lull the driver into a false sense of security that ends with a skid.

The less common front-wheel skid may become more frequent now that snappy handling front-wheel-drive cars such as Ford's two-seater EXP Turbo Coupe have the additional horsepower of a turbo-charged engine.

(left)
Jerky movements of the steering wheel, brakes or accelerator can force even a limited-edition, high-performance vehicle such as this Ford Mustang SVO with its race-derived technology into a sudden skid.

as anything on the roads, they can lull their drivers into a false sense of security. Over-confident drivers motor on too fast for conditions until the car starts to skid.

Whether the skid is caused by jerky maneuvers of the steering wheel, brakes or accelerator is not important at the time of the skid. What's important then is regaining control of the car.

The most common skid is a rear-wheel one in which it feels as though the rear end of the car wants to come around and pass the front. Regardless of whether you're driving a rear or front-wheel-drive vehicle, to regain control you do basically the same things.

You first steer in the same direction the rear wheels are skidding. At the same time you declutch cars with manual transmissions or take your foot off the accelerator on automatics.

When the rear wheels have stopped skidding, you gently steer the car back so that the front wheels point straight ahead when the rear wheels are back on course.

It's at this point that you have to be extremely careful with front-wheel-drive cars because the rear wheels may start to skid in the other direction. It takes training, practice and extremely gentle movements of the steering wheel to deal with this situation.

What you must do with a front-wheel-drive car in a rear-wheel skid is not overcorrect for the first skid. That is, if the car is skidding to the left, don't turn the steering wheel too far to the left. Then, when you feel that the car is on its way back to straightening up, you must follow it back with the steering wheel.

In a front-wheel skid you turn the steering wheel but the car continues to go straight. Because front-wheel skids are far less common than rear-wheel ones they seem more dangerous. However, they are going to become more common as the newer turbo-charged, front-wheel-drive cars are accelerated, braked and steered heavily by inexperienced drivers.

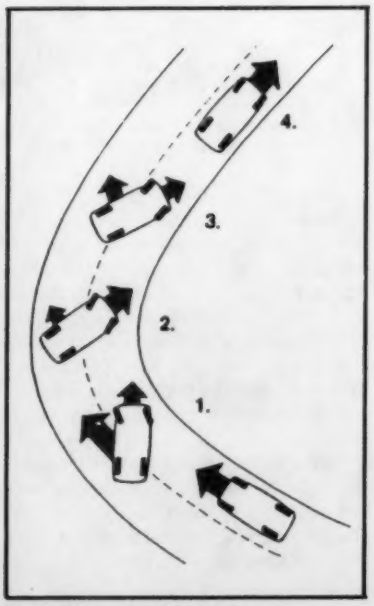
A front-wheel skid is very easy to correct regardless of what kind of car you're driving. You don't move the steering wheel, but you do de-clutch a manual transmission or take your foot off the gas on an automatic. As the front wheels are skidding sideways they are acting as brakes. When they have scrubbed off enough speed the car will start to turn.

When the front wheels start to grip and turn the car, you can steer the wheels carefully to make up for the distance you went beyond where you planned to turn.

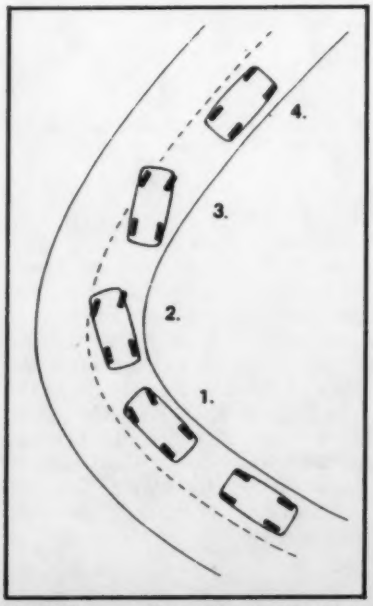
When you have recovered control from a rear- or front-wheel skid with either a rear- or front-wheel-drive car, you release the clutch and match the engine's speed with the car's road speed as you gently accelerate away.

If you haven't already guessed, the primary reason for any skid is too much speed for conditions. In these cases "speed" can be what the car is traveling or it can be the speedy actions of the driver such as jerking the steering wheel, heavily braking or jabbing the accelerator.

Skidding is best avoided by slowing down well in advance of bends, turns and corners as well as avoiding all sudden maneuvers.



Steer into a rear-wheel skid.



But don't move the steering wheel in a front-wheel skid until the car starts to turn.

what's THE BACKYARD MECHANIC to do?

SELL? LEND? STORE?

DUPLICATE AND SAVE THIS ARTICLE

Moving is a fact of military life. On most of the moves you can take your car with you, but there are others where you can't. For those moves where you can't take your vehicle with you, you're left with three basic options: You can sell it, leave it with someone, or put it in storage.

If you choose to sell your car your worries should end with the title transfer. The other two solutions aren't so easily put to rest.

Leaving your car for someone else to use as *they* see fit presents its own special problems. Regardless of whether they are going to use it as daily transportation or only drive your car occasionally, you want the vehicle treated with the same respect you give it — probably more.

Notice that we're only talking about the physical condition of the vehicle; insurance and registration problems are another story altogether. A story that varies from location to location and requires that you personally check with your local insurance agent and legal authorities.

The proper respect for a vehicle begins with making sure that it has a full set of instruments. If it didn't have them when it left the factory, they should be added. The minimum your car should have are a tachometer, oil pressure and water temperature gauges. They are used not only to warn you when you're approaching or exceeding recommended limits, but also to help in properly warming up the engine and drive train.

After starting the car, wait for the oil to begin fully circulating (the oil pressure builds up to a steady reading). Then hold the engine speed at a steady 2,000 rpm until the temperature gauge starts to move. Do NOT "blip" the throttle (run the engine speed up and down rapidly) since this does more damage than any other form of abuse.

Whether you are just going away for the weekend or leaving your car while you are gone on a 90-day TDY or a year's remote assignment, a high-quality cover can help protect the finish.

Once the temperature gauge has moved off the peg, drive away shifting at 2,500 rpm until the temperature has risen to operating level. Now the car can be driven any legal way you want because the engine, transmission and the rest of the operating gear should be evenly heated.

If the vehicle is only driven occasionally the best exercise for it is 20 miles of continuous highway driving. This will also burn off many of the corrosive deposits that build up if it is used only for short trips.

Another part of proper respect for any vehicle is a regular maintenance schedule based on both mileage and time. For example, if you've been changing the oil every 3,000 miles, then it should be changed at least that often while someone else is driving it. And if they don't drive it as often and as far as you did, then the oil should be changed every three months.

Remember, six months is the maximum in-service life of any oil regardless of how few miles it is driven. Even synthetic oils that are supposed to last a year, require a filter change every six months.

With the engine warm, stuff and plug the air cleaner opening. Don't forget to do the hot air supply side (the tube at the top of the photo) too.

Once the opening is plugged, seal it with duct (silver-colored fabric) tape.

The third alternative for your vehicle is storage. Clearly, leaving it parked in a garage isn't enough. The car must be properly prepared if it is not to be driven for several months.

Ideally, the vehicle should be kept in a cool, dark environment where the temperature doesn't fall below freezing. Extremely high temperatures are also dangerous. However, if the paint is marginal, or the car is to be left in a fairly temperate climate, it can be stored outside.

The most important thing to remember when mothballing the engine is to do it while it's warm. All the procedures are worthless if moisture has a chance to seep into a cold engine.

The fuel system can be prepared by using a siphon pump or other safe draining method to remove as much gasoline as possible from the tank. Then let the engine run until it's out of gas. If gasoline is left in the system it will evaporate, leaving a deposit that can damage the engine and fuel components.

Mix up a three- or four-quart solution of kerosene and oil (three parts kerosene to one part oil), dump it in the tank and bounce the vehicle to thoroughly slosh and coat the inside of the tank.

continued

continued

Hold it right there. While you do have to plug the oil breather on older model cars, this is a newer engine with pollution controls and therefore already has a closed system.

Remove the spark plugs and ground the large ignition wire coming from the coil to the distributor. Pour one ounce of non-detergent oil through the spark plug port into each cylinder. Use the same weight oil you would normally use for local driving.

Reinstall the plugs, but not the coil wire. Crank the engine over five to 10 seconds. This will coat the cylinders with oil and draw the kerosene/oil mixture into the fuel pump and carburetor to help the rust-proofing process.

Change the oil and filter. Contaminants in dirty oil can cause serious problems when left in the engine.

Relieve tension on all drive belts (fan, power steering, air conditiner, A.I.R., etc.) to prevent stretching and belt damage during storage.

The coolant should be drained, the system flushed and fresh rust-inhibiting coolant added in the strength normally used locally.

Insure transmission and differential fluid levels are correct, too.

Remove the battery. If it's not a "lifetime" type, sell it or throw it away. The "lifetime" batteries will usually take a charge after sitting for a year or more, whereas a conventional battery probably won't.

Get some duct (silver-colored fabric) tape to plug and tape the exhaust pipe(s) and air cleaner. On older vehicles, also plug and tape the breather on the valve cover.

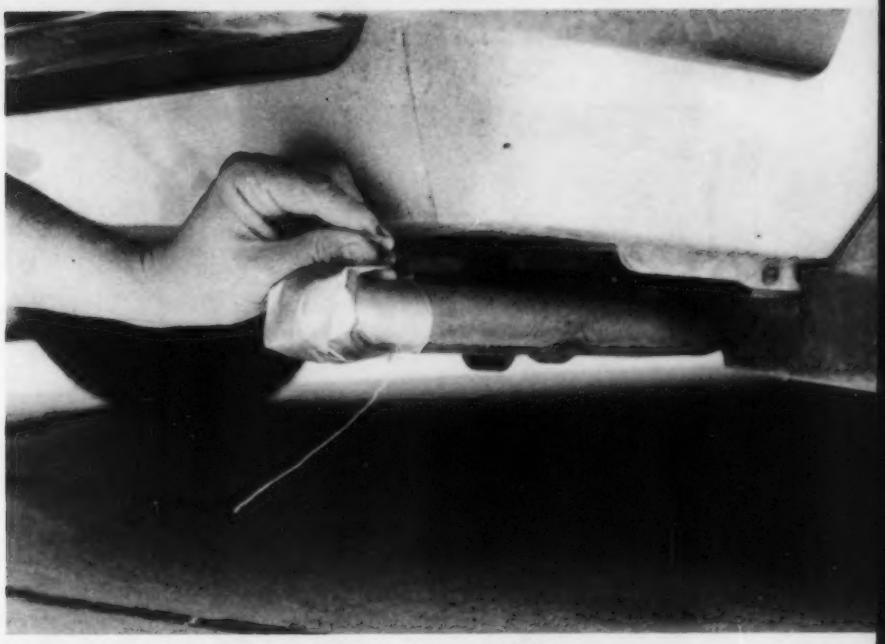
Use a good upholstery cleaner and lots of elbow grease on the interior. This will clean and soften the upholstery and get it ready for an application of silicone spray. Don't forget to treat all the plastic interior parts with the silicone spray including knobs, dials and a double dose for the vinyl dash. Neatsfoot oil works wonders on real leather.

A light layer of petroleum jelly will preserve chrome, while bright-metal trim needs no treatment.

Now hit the tires, door seals and vinyl top with that silicone spray.

If at all possible put the car on jack stands or blocks and remove the tires and wheels. If for any reason you can't take the tires and wheels off, this will at least eliminate tire flat-spotting as well as ease the strain on shocks, wheel bearings, etc.

If the car can't be jacked up, increase the air pressure in each tire 10 to 15 psi.



Don't forget to plug and seal the exhaust end of the engine also.

Try to leave the car in neutral with the parking brake off. It would also be wise to cut a piece of wood long enough to fit from the bottom of the dash to fully depress the clutch.

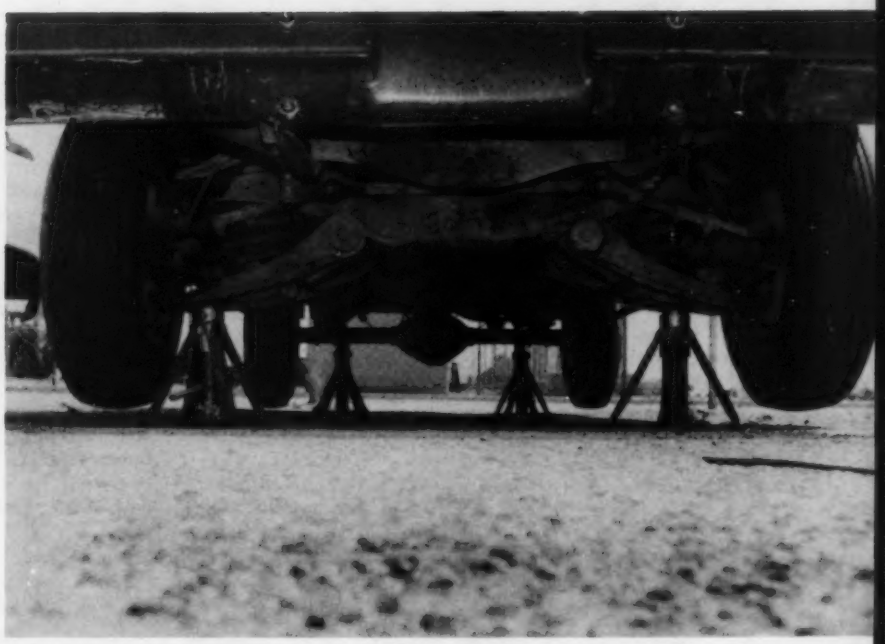
Finally, open a window just a crack and cover the vehicle with a top quality car cover. Don't use plastic to cover the car because it can't breathe and moisture will be trapped against the body. Also, if the car is being left in a windy area you may not want to cover it all. The wind will cause the cover to flap and ruin the paint.

When you're ready to drive the car again, just reverse the preparation process. Add gasoline (the kerosene/oil mixture will probably have evaporated), install a freshly charged battery and tighten all the belts. Check all fluid levels such as the radiator, power steering pump, brake reservoir, oil and differential. Don't forget to check the tire pressures also.

Disconnect the fuel line between the fuel pump and carburetor. Provide a safe catch basin for the fuel and turn the engine over for 10 to 15 seconds. This will both pump out any residue in the fuel line and provide oil to engine parts.

Reconnect the fuel line, reinstall (unground) the coil wire, install new spark plugs and start the engine. It may be hard to start and run unevenly at first, but it should smooth out in a few minutes.

Before driving away, check for fluid leaks, make sure all the lights are working and double-check the brakes. Now you can buckle up and start to drive off slowly, triple-checking braking action as well as steering control.



Jack stands or blocks will ease the strain on shocks, wheel bearings, etc., while you're away.

continued from page 13

If someone has passed you and is facing one of the others on the road, do everything you can to allow him back in his original lane.

Be alert for those who might cross the center line into your path. A head-on collision is the most dangerous type of accident.

mirror. Remember to slow down if you're above the posted limit.

You need 10 to 12 seconds to perform a pass like that. But that was a simple pass, without any interference from cars coming toward you. They are also out there.

You need much more space when there are oncoming cars. "How much?" is a good question. The American Automobile Association and some driving schools say that if you can detect movement in the oncoming car, it's too close; wait until it passes by. A mistake in a situation like this can set up that worst possible accident situation, the head-on collision. A head-on collision should be avoided at all costs. Any other kind of collision — sideswipe or glancing blow or whatever — is likely to be less serious than a head-on.

If you move out to pass a car and another car is approaching, move back and get back to the right lane. Be especially careful about oncoming traffic when you are passing more than one car. There are no guarantees that they will give you sufficient room to get back in line if you meet an oncoming car.

If you are being passed and that car faces an oncoming vehicle, give him room to get back into your lane, and squeeze as far right as you can at the same time.

Following too closely: Do you follow other cars close enough to read the bumper sticker where it says "If you can read this, you're too close?" What's the message you should be getting from that? Simply "I'm here and I have a right to be."

Take a look at those people who follow you too closely. You'll probably see expressions of anger or at least annoyance. And pay attention to what you feel the next time you follow another car too closely. You'll probably find that you are annoyed with the driver ahead of you, thinking, "Why doesn't he get out of my way?"

There is a simple way to verify that you have sufficient following distance between yourself and the car ahead of you. Always maintain a following distance equal to the length your car travels in two seconds. This "two second rule" will give you adequate room for stops or emergency maneuvers, no matter what speed you are moving.

Wait for the car ahead of you to pass a stationary object, like a tree or a road sign. Then count off two seconds like this: "One-thousand-and-one, one-thousand-and-two." You should pass the stationary object after you say the word "two." If you pass it sooner, slow down.

Maintaining this distance will greatly reduce the likelihood you will rearend anyone. It is much easier than trying to guess at a certain number of car lengths between yourself and the car ahead. Few people can judge distance accurately enough to use the old measure of "one car length for every ten miles per hour."

Overtaking: Overtaking slower-moving vehicles is similar to following too closely, but it refers to streets rather than freeways. It could be a fault of speeding, or it could be a fault of not watching far enough ahead to see the slow-moving vehicle is there. We've already spoken of speeding, so now let's discuss the visual path.

You should watch about 12 seconds ahead at all times. That is, you should watch the space ahead of you equal to the distance your car travels in 12 seconds. This will keep you alert for all possible hazards ahead.

While we're talking about space zones in terms of seconds, we'll mention one more. The American Automobile Association says you should allow a stopping zone of *four* seconds for intersecting traffic (those cars moving across your path of travel). This is double the two-second following distance. The reason is that a car moving *across* your path, for instance one coming out of a driveway, is not moving *away* from you. You need more room for safety. Be careful in these situations.

You're not alone: If we could totally eliminate these examples of improper driving, it would greatly reduce the death and injury toll of traffic accidents. We can all work toward that goal simply by remembering that we are not alone out there on the road, and driving accordingly.

tteecc!h!h double tech with tsgt ron lathrop

COMMENT: I have enjoyed your magazine for a number of years, especially your articles on motorcycles and motorcycle safety. Your June '83 edition contained a good test for motorcycle riders. However, there were several glaring errors. Questions 10, 13, 16 and 17 to be exact.

Your answers for questions 10 and 16 concerning the best riding position indicated that riders should ride in the center of the lane. The laws in many states, including New Mexico, preclude this practice. New Mexico law states that motorcycle operators must remain in the left-hand third of the lane unless making a turn. Also the grease strip in the center of the lane is extremely dangerous in wet weather and should be avoided.

REPLY: Chief Planner for New Mexico State Traffic Safety Bureau Howard Graff says that there is no such law on the state's books, although there might be some local statute in your area. However, under New Mexico state law any licensed vehicle is entitled to the full use of the lane it occupies.

Graff feels that you may have been confused by the State's Motorcycle Operator's Manual which *suggests* certain lane positioning. New Mexico's Motorcycle Operator's Manual follows the Motorcycle Safety Foundation's Motorcycle Operator Manual. And the MSF provided the quiz used in the June issue of DRIVER basing all questions on their Motorcycle Operator Manual.

Now the quiz was meant as a check of your knowledge of riding skills, not as a complete guide to any single subject. For a more complete discussion of lane positioning see "There Are No Absolutes" in the April 1983 DRIVER.

As for your comment about the grease strip being extremely dangerous in wet weather, that's exactly what the answer to question 16 in the June issue said.

COMMENT: Question 13 indicates the correct "cushion" distance between a motorcycle and other vehicles is two seconds. Wrong again. The suggested distance for cars is at least five seconds or five vehicle lengths. Although a motorcycle is more maneuverable and can stop faster than other vehicles, the motorcyclist should take even more precautions than other vehicle operators.

REPLY: The two-second following rule has been a safety industry standard for 15 years or longer. It is a realistic standard based on the amount of time it takes an average driver or rider to see and react to a hazard. Before the two-second rule there was talk of one or two car lengths for every 10 miles per hour; however, car lengths are very hard for most operators to estimate.

Granted the two-second rule is the minimum following distance and more "cushion" such as your five-second rule would provide a larger safety margin. In fact, in open areas such as New Mexico, a five-second following distance might even be practical. But it is not a realistic rule for areas such as Los Angeles where traffic is very dense. In fact, maintaining a two-second following distance is very difficult because other traffic will fill any opening large enough for their vehicle.

Also, the belief that motorcycles can out-maneuver and stop better than other vehicles has probably caused more preventable accidents than any other misconception. Operator skill has a lot to do with how well any vehicle — motorcycle, car, pickup, 18-wheeler — maneuvers and stops. Believe me, there are cars out there that can stop shorter than motorcycles. That's why the two-second rule only accounts for seeing and reacting to a hazard, not the total stopping distance of any one type of vehicle.

By the way, five car lengths is less than the two-second rule at speeds greater than 25 mph.

COMMENT: Finally question 17. When making a quick turn, you suggest leaning quickly in the direction of the turn. I have been involved in only one minor accident in over 20,000 miles of riding. The cause of the accident was using your suggested procedure. I have since learned to use countersteering, an answer which you did not include in the quiz. This is surprising to me because you had a very good article on the subject of countersteering in one of your previous editions.

REPLY: In going back over the answer to that question with an MSF chief instructor, he and I agree with you that the answer should have been more complete.

In an emergency situation — or any situation for that matter — there is only one way to get a bike to turn quickly and that is to force it to lean. And the only way to force the motorcycle into leaning is by countersteering.

That's all countersteering is; forcing the motorcycle to lean in one direction by steering in the opposite direction.

So the answer to the question of making a quick turn is to quickly lean the motorcycle in the direction of the turn. How do you lean the motorcycle in the direction of the turn? You countersteer.

The previous article you mentioned is in the April 1980 DRIVER titled "Motorcycle Cornering."

EDITOR'S NOTE: If you have a general interest automotive comment that you would like a reply to, and feel others could use the information also, send it to:

DOUBLE TECH
DRIVER MAGAZINE
HQ AFISC/SEDD
NORTON AFB, CA 92409

BACKFIRE
LETTERS to the EDITOR

IN DEMAND!

During 1967 and 1968 I was stationed at Norton AFB in California and assigned to the 63d Military Airlift Wing. While stationed at Norton I became familiar with DRIVER Magazine, as did many of the other Air Force types. There never seemed to be sufficient copies of DRIVER to go around. Consequently, the magazines were usually dog-eared and well read before they found their way into the "circular file."

Following the two years at Yokota AB in Japan I was reassigned to Offutt AFB in Omaha, Nebraska. Again copies of DRIVER were in demand as they had been at Norton and Yakota and they were just as hard to find.

Upon leaving the Air Force in the middle of 1974 I stayed in Nebraska as I had the opportunity to work in civilian law enforcement. DRIVER was fast becoming increasingly difficult for me to find since my contacts with the Air Force were dwindling. But the copies that I was fortunate enough to get were a welcome sight to me. I often found the stories and information contained in DRIVER directly related to the job of law enforcement and beneficial in the performance of my job.

I have since moved to New Jersey where I am employed by Fort Monmouth Army Post. Believe me, Army types read DRIVER as avidly as members of the Air Force did. DRIVER is just as hard or harder to find as it ever was. I imagine that the distribution is not as high-numbered for other branches of the service as it is for the Air Force.

Dewey T. Holmes
Marlboro, NJ 07746

Thanks for the kind words. It's always nice to be appreciated. Our goal is to make DRIVER available to everyone 26 and younger, in the Services and civilian community. If your unit is not receiving a sufficient number of magazines, perhaps they should increase their distribution. The Air Force distribution of DRIVER is one copy for every nine USAF members. We hold no restrictions on the number of copies purchased by the other services. Any Air Force unit can adjust its magazine requirements by contacting their local PDO representative. Civilians may also subscribe to DRIVER by following the instructions on page two of any issue.

A REAL INTERVIEW?

Your July 1983 issue of DRIVER has an article entitled "DRIVER Interviews Head of RAH (Riders Against Helmets)." Some of your points are well taken (I always wear a helmet), but I feel this article is one of the most biased pieces of trash I have ever read!

You made the bikers (or motorcycle enthusiasts) look like a bunch of idiots. Why don't you have an interview with someone *real*?

SSgt G. Richardson, USAF
Chanute AFB, IL 61866

Sometimes truth is stranger than fiction. The article was based on a letter from a staff sergeant expressing word-for-word the comments printed. We used the interview device to make more interesting reading.

ANOTHER "AUTO FACT"

Your "Auto Facts" backcover on the July 1983 issue brought to mind an experience of mine which adds two more components to your cooling system checklist: the electric cooling fan motor and the thermal switch which controls it. Both are standard equipment in the newer cars with transverse engines and front-wheel drive.

I was in a traffic jam one hot night. After idling for five or 10 minutes, I was startled by a cloud of steam coming from under the hood (I had not been watching the temperature gauge). After shutting down and figuring out what had happened, I was careful not to let the engine idle long, keeping a constant eye on the temperature gauge. A new thermal switch cost about $25 from a dealer and was relatively simple to install in the radiator bottom tank.

If traffic jams aren't part of your normal driving pattern, your fan may not have had occasion to come on and you may not realize it isn't working. Your cooling system checkup should include letting the engine idle long enough to cause the fan to come on (you may need to block the grill in cool weather). It should start running before the overheat light comes on or before your temperature gauge gets out of normal range.

A valuable piece of emergency gear to add to your kit would be a set of small clip leads or a plus to connect in place of the thermal switch to get the fan to run continuously until you could replace the switch.

TSgt Frederick H. Wagner, USAF
Offutt AFB, NE 68113

Address your letters to:
Editor
DRIVER Magazine
AFISC/SEDD
Norton AFB CA 92409

*U.S. GOVERNMENT PRINTING OFFICE: 1983 683—027/11

Forty States NOW HAVE Child Restraint Laws

Shaded area includes all states with some form of mandatory child restraint use law for children up to the ages of 4 or 5. Only 19 of the 40 jurisdictions have laws now in effect. The rest will become effective later this year or some time in 1984.

All but ten states have adopted legislation mandating the use of approved child restraints or seat belts for small children.

Since the first law was passed in Tennessee in 1978, 40 states and the District of Columbia have acted to protect young children from death in motor vehicle crashes. Tennessee, the first state to enact such legislation allowed children to be held in the lap if they weren't riding restrained, but that provision was struck down in a 1981 amendment.

Many states have phased in the laws gradually, first warning violators that they must restrain their young children. Then, in a later phase, fines are assessed for violations. These often are waived when parents provide proof that they have obtained child restraints.

Transportation Secretary Elizabeth Dole announced that the National Highway Traffic Safety Administration (NHTSA) and the Federal Aviation Administration (FAA) will modify their rules to allow the use of NHTSA-FAA jointly-certified child restraints on airplanes.

Dole also said NHTSA and the FAA will jointly test child seats to decide which restraints now on the market are in compliance with the NHTSA's standard and also meet FAA performance requirements. The test program is meant only to provide an interim guideline to manufacturers pending the adoption of a common standard, the Department of Transportation said.

Seats that have already been approved by both NHTSA and the FAA are the Cosco/Peterson Model 78 and the Century Models 4100, 4200, 4300 and 4500.

Dole noted that use of restraint systems for children is up: infant seat use (up to age 1) is now about 35 percent, and toddler seats (age 1 to 5) are used by about 25 percent of that population when riding in cars. *(IIHS Status Report)*

Been quiet around here all summer, hasn't it? Well, that's about to end. Any day now, there'll be children in the crosswalk and on the sidewalk and maybe in the street. When you drive by here, watch out for them!